# **Create a “Self Test”**

# You will need:

# Short questions, short answers

# Optional list of words for matching

# Indicator of right or wrong answer

# The “IF” function

Layout:

* Heading with directions
* Sub-heading with optional list of words from which to choose
* OR, additional column with list of words from which to choose
* First column for question
* Second column for answer
* Third column contains “IF” function to indicate if the answer is right or wrong

Example: Test your planetary knowledge

Enter the name of the celestial body that corresponds with each fact.

Choose from the following: Sun, Moon, Jupiter, Saturn, Pluto, Mercury, Mars, Venus

|  |  |  |
| --- | --- | --- |
| All planets rotate around me. |  | =IF(A3="Sun","YES","NO") |
| I have five moons. |  | =IF(A4="Jupiter","YES","NO") |
| I am the most recently discovered planet. |  | =IF(A5="Pluto","YES","NO") |
| I am the closest to the sun. |  | =IF(A6="Mercury","YES","NO") |
| I am a gaseous planet. |  | =IF(A7="Venus","YES","NO") |

Explanation:

Note the following components of the “IF” function:

* =IF( )

All formulas or functions begin with an equal sign. IF indicates the function to be performed. The parenthesis enclose the “variables” to be considered.

* A3=

This gives the cell address whose content is to be compared.

* “Sun”,

This is the value with which to compare the cell content. It must be in “quotation” marks if it is text. Note that ALL text must be in quotation marks. Also, if a student typed “sun” with a lowercase S, there would not be a match. CASE MATTERS when text is in quotation marks. The commas separates the comparison value from the next value.

* “YES”,

This is the value which is shown in the cell where you type the “IF” function, IF A3 does equal “Sun”. Again, quotation marks are necessary to indicate text. The comma separates this value from the last.

* “NO”

The final value in the function is the value which appears IF A3 does not equal the value given immediately following the equal sign.

# Sort

To sort a single column alphabetically or numerically in increasing or decreasing order:

* Click on the column letter to select the entire column
* Click the “A-Z” button on the toolbar. One A-Z button has an arrow pointing up, and one has an arrow pointing down.
* NOTE: If you do this sort, the row items will not longer be together.

To keep cells on a row all together, but still put the rows in increasing or decreasing order, do the following:

* Select ALL OF THE COLUMNS.
* Click the Data menu, then Sort.
* In the dialog box, select the column heading by which you wish to sort.

# Filter

Filter is similar to sort, but rather than just changing the order of items, it “hides” items. Filtering applies to VIEWING and to PRINTING the sheet, but at all times the data is still in the spreadsheet and can be retrieved by removing the filter. Filtering can only use data in one column at a time.

To apply a filter, select one column by clicking on the heading letter of the column. Choose the Data menu, then Filter, then AutoFilter. A checkmark appears next to AutoFilter.

As you look at the selected column, notice there is now a small “drop-down menu” triangle on the top right side of the column. Click this triangle button and select the item you wish to SEE. All rows that do not contain the selected data will disappear. To change the data on which you filter, click the triangle button again and choose a different item.

If you choose “custom” from the triangle drop-down menu, you can show rows based on one or more values in the column, and based on values greater than or less than the value you specify.

To completely remove the filter, go to the Data menu, then Filter, then AutoFilter. The checkmark should disappear, and the triangle button as well. This completes basic filtering.

**STEP FOUR: TIPS AND TRICKS**

As you begin adding lots of assignments, the page will scroll to the right, and you won't be able

to see the students' names anymore. Make sure they're always visible! Click cell B2, and then

click Window Freeze Panes.

You'll also want to make sure, when you have lots of assignments, that students' names also print

on every page. To do that, click File Page Setup and choose the Sheet tab. Next to the words

Columns to repeat at left, click the small white, blue, and red icon. A new small window will

appear. Click the A at the top of column A, then click the white, blue, and red icon again. Cl

**Using Logical functions**

Excel has a useful built-in function for dealing with errors such as this. It's the logical IF function. The whole function looks like this: =IF(Logic expression, Value if True, Value if False). Actually, Excel has over 100 functions divided into nine categories. Let’s look at the built-in functions now so that you can know how to find them when you need them.

From the **Insert** menu select **Function...**

The Insert Function dialog box appears on the screen (Fig. 4.12).

Click on the **Logical** category in the **Function category:** drop down menu and look at the set of 6 **Logical** functions which appear in the new dialog box (Fig. 4.13)

Fig. 4.13 The Logical functions

Notice the IF logical function—the third one listed in the Function Name: area of the dialog box.

**Double click** to select the **IF** Function now, and notice that the **components** of the IF function are displayed in the next dialog box (Fig. 4.14)

Fig. 4.14



The Logical test part of the expression is a statement which the spreadsheet will evaluate as either true or false. For example 2+2=5 will be evaluated as false; 2+2=4 will be evaluated as true. The second part of the Logical IF expression (value\_if\_true) is what you want the spreadsheet to put in the cell if the Logical expression is true. The third part of the Logical IF ESSENTIAL MICROSOFT OFFICE XP: Tutorial for Teachers Copyright © Bernard Poole, Lorrie Jackson, Rebecca Randall, 2002. All rights reserved 118

expression (value\_if\_false) is what you want the spreadsheet to put in the cell if the Logical expression is false.

Try the following example for practice. It will be easier to begin with if you just type in the formula yourself instead of using the built-in function provided by Excel. Built-in functions are really useful when you know what you’re doing, as you will soon enough. But let’s keep it simple for now.

Close the **Function Arguments** dialog box by clicking on the **Cancel** button

Click in cell **A30** and type the formula:

**=IF(2+2=5,"How can that be True!","Of course it's False!")**

Click on the check mark () to accept the formula into cell **A30**

We know that 2+2=5 is False, so the result that will be displayed in cell **A30** will be "Of course it's False!". Notice, by the way, that you can have text as the result; it doesn't have to be a number.

Select **Clear** from the **Edit** menu, or hit **Del(ete)** to remove the formula from cell **A30**

Back to the Division by zero problem

OK, in cell L14 you want to tell Excel that if the value in cell J10 is zero (0), it should put a phrase such as "Div/0 error" in cell L14. This will better explain what is going on. It will also remind you that those Maximum Scores need to be updated before the spreadsheet will work with an actual class of students. You will also tell Excel in cell L14 what to do if the value in cell J10 is other than zero (0)— which it will be if there are Maximum Scores other than zero. In this case, you will tell Excel to go ahead and calculate the percentage for the student.

Now, how would you write that as a formula? If you think you can figure it out (and you'll impress your instructor no end if you can!), write down the correct formula in the box below:

…………………………………………………………………………………………

The answer is....(drum roll...)

**=IF(J10=0,"Div/0 error",J14/J10)**

Go ahead and type this formula into **cell L14** now

**Absolute references**

You need to make one small change to the formula in cell L14 before you copy it to each of the cells from L15 through L23. This is because part of the formula needs to be an Absolute Reference.

Look at the formula again:

**=IF(J10=0," Div/0 error",J14/J10)**

Cell J10

Cell J10 contains the total of the maximum scores. The percentage for every student is calculated by using the value in this specific location. So the reference to this cell must not change when the formula is copied to the other cells in column J. This is why it is called an Absolute Reference— Lesson 4: Introduction to the *Excel* Spreadsheet 119

it must not change; it must always reference cell J10. The value in J14, on the other hand, is relative to the student data in row 14. This reference (to cell J14) will change relative to each student.

Does that make sense? Read the previous paragraph over again if you need to. The fact is that you must tell Excel that you want any references to J10 in the formula specified for cell L14 to be Absolute, otherwise the formula will not copy correctly to the other cells in column J.

Follow these steps to do this.

Select cell **L14**

Look at the Entry bar. You should see the formula =IF(J10=0,–Div/0 error",J14/J10).

Position the cursor immediately after the first parenthesis in the **Entry bar**

Type a **dollar sign ($)** before the letter **J**, and another **dollar sign ($)** before the number **10** (so the formula will now be **=IF($J$10=0,"Div/0 error",J14/J10)**)

Look at the formula again. Do you see the second reference to cell J10 at the other end of the formula (J14/J10)? You're going to need $ signs there, too.

Go ahead and fill them in (J14/**$J$10**) just as you did at the beginning of the formula

The $ signs tell Excel to treat the reference to column J and row 10 as Absolute when copying the formula to other cells. The reference to J14, on the other hand, will be Relative and will therefore change relative to whichever cell it is copied to, so there's no need for dollar signs here. Remember:

A dollar sign ($) before each part of a spreadsheet cell address tells Excel to treat the reference to the cell as an absolute (unchanging) reference.

Phew! That's the tough part over with.